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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,193	09/21/2001	Hiroyuki Atarashi	214072US2PCT	4538
22850 7590 01/16/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER WONG, WARNER	
			ART UNIT	PAPER NUMBER
			2616	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/16/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/926,193

Applicant(s)

ATARASHI ET AL.

Examiner

Warner Wong

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. **Claim 16** is objected to because of the following informalities: in lines 3-4, it states "into which common pilot signal is inserted periodically into every time frame". However, its parent claim 5 indicates "inserting the common pilot signal continuously into the time frame", which is contradictory. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1-4, 6, 8-12, 14 and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Wallace (US 6,473,467).

Regarding claims 1 and 8, Wallace describes a channel structuring method/base station (fig. 2 shows the channel structuring method and fig. 1A & col. 4, lines 40-45 show the base station) wherein transmission signals are modulated by orthogonal frequency division multiplexing (OFDM) comprising n subcarriers and multiplexed by time division multiplexing to configure downlink channels (fig. 2 & col. 10, lines 33-42), said method/base station comprising:

a step/common control channel signal insertion unit for selecting from the n subcarriers, a predetermined number of subcarriers for insertion of common control channel signals (fig. 3 & col. 10, lines 58-61, example selects subchannels (subcarriers) to insert common control channels, also mentioned in col. 28, lines 14-16);

a step/pilot signal insertion unit for selecting, from n subcarriers, a predetermined number of subcarriers for insertion of common pilot signals (fig. 2 & col. 10, lines 45-48).

Regarding claim 2, Wallace describes:

a step of providing time frames by segmenting a communication channel of said n subcarriers at every predetermined interval (col. 10, lines 37-61, frequency subchannels are time-divided into time slots (predetermined intervals));

a step of selecting a predetermined number of subcarriers from said n subcarriers, and periodically inserting the common control channel signal into every time frame of said selected subcarriers (fig. 2 & col. 10, lines 58-61, selection of subchannels (subcarriers) 1 & 2 are assigned to periodically insert common control channel signal into every time slots (frames) 2-9 and selection of all subchannels are assigned to periodically insert common pilot signal in every time slot 1.

Regarding claim 3, Wallace describes that the common pilot signal is inserted at the same timing as common pilot signals of other subcarriers (fig. 2, the common pilot channel signal is always inserted at the same timeslot 1 for all subchannels).

Regarding claims 4 and 12, Wallace describes:

a step of providing time frames by segmenting a communication channel of said n subcarriers at every predetermined interval (col. 10, lines 37-61, frequency subchannels are time-divided into time slots (predetermined intervals));

a step of selecting a predetermined number of subcarriers from said n subcarriers, and inserting the common control channel signal continuously into the time frame of said selected subcarriers (fig. 2 & col. 10, lines 58-61, selected subchannels (subcarriers) of 1 & 2 are assigned to continuously insert common control channel signal);

a step of selecting a predetermined number of subcarriers from said n subcarriers, and inserting the common pilot signal periodically into every time frame of said selected subcarriers (fig. 2 & col. 10, lines 44-48, selecting all (predetermined) subchannels (subcarriers) to periodically insert common pilot channel in every time slot (frame) 1).

Regarding claims 6, 14, 16 and 18, Wallace describes:

the selected subcarriers into which said common control channel signal is inserted are partially the same as the subcarriers into which the common pilot signal is inserted periodically into every time frame of said selected subcarriers (fig. 2, subchannels 1 & 2 carrying control and broadcast (common control) signals also includes the periodic pilot signals in timeslot 1.)

Regarding claim 9, Wallace further describes that time frames are provided by segmenting a communication channel of said n subcarriers at every predetermined

interval (col. 10, lines 37-61, frequency subchannels are time-divided into time slots (predetermined intervals));

said common control channel signal insertion unit selects a predetermined number of subcarriers from said n subcarriers, and inserts the common control channel signal periodically into every time frame of said selected subcarriers (fig. 2 & col. 10, lines 58-61, predetermined subchannels 1 & 2 are inserted with control & broadcast (common control) channel signals in time slots 2-9).

Regarding claim 10, Wallace describes that time frames are provided by segmenting a communication channel of said n subcarriers at every predetermined interval (col. 10, lines 37-61, frequency subchannels are time-divided into time slots (predetermined intervals));

said common pilot signal insertion unit selects a predetermined number of subcarriers from said n subcarriers, and inserts the common pilot signal periodically into every time frame of said selected subcarriers (fig. 2 & col. 10, lines 44-48, selection of all (predetermined) subcarriers to periodically insert common pilot signal in every time slot 1)).

Regarding claim 11, Wallace describes:

said common pilot signal insertion unit selects a predetermined number of subcarriers from said n subcarriers, and inserting the common pilot periodically into every time frame of said selected subcarriers (fig. 2 & col. 10, lines 44-48, selection of all (predetermined) subcarriers to periodically insert common pilot signal in every time slot 1));

said common control channel signal insertion unit and said common pilot signal insertion unit insert the common channel signal and common pilot signal, respectively, into said selected subcarriers such that a timing of the insertion of the common pilot signal are the same time of common pilot signal of other subcarriers (fig. 2, insertion of control channel signals & common pilot signals such that all common pilot signals are placed in time slot 1).

Regarding claim 17, Wallace describes that time frames are provided by segmenting a communication channel of said n subcarriers at every predetermined interval (col. 10, lines 37-61, frequency subchannels are time-divided into time slots (predetermined intervals));

said common control channel signal insertion unit selects a predetermined number of subcarriers from said n subcarriers, and inserts the common pilot channel signal periodically into every time frame of said selected subcarriers (fig. 2 & col. 10, lines 44-48, all (predetermined) subchannels are inserted with pilot channel signals in time slot 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5, 7, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace in view of Baum (US 5,867,478).

Regarding claims 5 and 13, Wallace describes:

a step of providing time frames by segmenting a communication channel of said n subcarriers at every predetermined interval (col. 10, lines 37-61, frequency subchannels are time-divided into time slots (predetermined intervals));

a step/common control channel insertion unit of selecting a predetermined number of subcarriers from said n subcarriers, and inserting the common control channel signal periodically into every time frame of said selected subcarriers (fig. 2 & col. 10, lines 58-61, predetermined subchannels 1 & 2 are inserted with control & broadcast (common control) channel signals in time slots 2-9).

Wallace describes that other techniques may be used for distributing pilot data over time and frequency (col. 10, lines 48-50), where each subchannel and each time slot can be flexibly assigned to send pilot signal (col. 12, lines 5-13), but fails to describe selecting a predetermined number of subcarriers and continuously inserting the pilot channel signal into the time frame of said selected subcarriers).

Baum describes [a pilot signal insertion unit of] selecting a predetermined number of subcarriers to continuously inserting the pilot channel signal into the time frame of said selected subcarriers (fig. 5 & col. 10, lines 5-11, set of 4 subcarriers dedicated for pilot transmission purpose).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to use the pilot transmission scheme of Baum for inserting pilot channel signals into selected subcarriers of Wallace.

The motivation for combining the teaching is that such modified channel structuring method reduces/suppressions co-channel interference (Baum, col. 3, lines 17-26).

Regarding claims 7 and 15, Wallace describes:

step of providing time frames by segmenting a communication channel of said n subcarriers at every predetermined interval (col. 10, lines 37-61, frequency subchannels are time-divided into time slots (predetermined intervals));

a step/common control channel signal insertion unit of selecting a predetermined number of subcarriers from said n subcarriers, and inserting the common control channel signal continuously into the time frame of said selected subcarriers (fig. 2 & col. 10, lines 58-61, selected subchannels (subcarriers) of 1 & 2 are assigned to continuously insert common control channel signal);

Wallace describes that other techniques may be used for distributing pilot data over time and frequency (col. 10, lines 48-50), where each subchannel and each time slot can be flexibly assigned to send pilot signal (col. 12, lines 5-13), but fails to describe a step of selecting a predetermined number of subcarriers and continuously inserting the pilot channel signal into the time frame of said selected subcarriers).

Baum describes [common pilot signal insertion unit of] selecting a predetermined number of subcarriers and periodically inserting the pilot channel signal into the time

frame of said selected subcarriers (fig. 5 & col. 10, lines 5-11, set of 4 subcarriers dedicated for pilot transmission purpose).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to use the pilot transmission scheme of Baum for inserting pilot channel signals into selected subcarriers of Wallace.

The motivation for combining the teaching is that such modified channel structuring method reduces/suppressions co-channel interference (Baum, col. 3, lines 17-26).

Response to Arguments

4. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warner Wong whose telephone number is 571-272-8197. The examiner can normally be reached on 6:30AM - 3:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Warner Wong
Examiner
Art Unit 2616

WW


WING CHAN
SUPERVISORY PATENT EXAMINER